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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,135	11/01/2005	Katsuhiro Takushima	125509	4295
25944	7590	12/28/2007		
OLIFF & BERRIDGE, PLC P.O. BOX 320850 ALEXANDRIA, VA 22320-4850			EXAMINER RIGGLEMAN, JASON PAUL	
			ART UNIT 1792	PAPER NUMBER
			MAIL DATE 12/28/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/551,135	Applicant(s) TAKUSHIMA, KATSUHIRO	
	Examiner Jason P. Riggleman	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2007.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 33-35,38-48 and 68-69,71 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 33-35,38-48 and 68-69, 71 is/are rejected.
- 7) ☒ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>Foreign reference</u> . |

DETAILED ACTION

Status of Claims

1. Applicant's replies filed on 10/9/2007 (amendment) and 12/18/2007 (supplemental amendment) are acknowledged. Current pending claims are 33-35, 38-48, and 68-71. Claims 1-32, 36-37, 49-67, and 70 have been canceled. Claims 33-35, 38, 44-45, 68, and 71 have been amended. The supplemental amendment filed on 12/18/2007 corrected formalities such as underlining claim changes.

Response to Arguments

2. Applicant's arguments with respect to claims 33-35, 38-48, and 68-71 have been considered but are moot in view of the new ground(s) of rejection. The applicant's amendments have necessitated a new grounds of rejection. The objections to the specification and claims are withdrawn in view of the amendments. The previous 112, 1st and 2nd paragraph, rejections are withdrawn in view other the amendments/cancellation of the claims.

3. The applicant's argument, with respect to the rejection of the claims with Gross et al. are not persuasive. The applicant states that Gross teaches or suggest the requisite particle size or uniformity of the claims. The liquid is a homogenous solution; therefore, there is no reason to believe that the solution contains particles at all and would be free of particles of 0.1 μm . The applicant appears to assume that all pure liquids, under normal conditions, contain particles of $<0.1 \mu\text{m}$; however, this is not persuasive. The applicant must support such a broad-reaching statement with proof. Further, it is suggested that the applicant withdraw these **apparatus** claims to expedite prosecution.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 68 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The cleaning agent not containing 1.1 μm or larger particles is new matter. This is considered a typographical error as is assumed to be -- 0.1 μm (as claimed in claim 33).

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 33-34 and 68 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The original disclosure does not contain the negative limitation "cleaning agent is a liquid not containing 0.1 micron or larger particles". Filtering the liquid through a 0.1 micron filter is no guarantee that the liquid is

free of smaller particles -- nucleation or contamination may occur. Also, the applicant is challenged as to why the solution is filtered in the first place. Is it in a clean room?

8.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 68-69 and 71 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Gross et al. (US Patent No. 4891150).

10. Gross et al. teaches a cleaning method for cleaning an object (toilet bowl) comprising making a cleaning agent (toilet cleanser) contact a surface of the object (toilet bowl) where the cleaning agent (toilet cleanser) is in a liquid state and consists of a liquid having a viscosity of 200 to 300 mPa•s (100 – 250 mPa)(Column 3, Lines 20-34). Note: the Gross et al. describes the viscosities of the toilet cleanser in units of mPa (pressure); however, this is obviously a typographical error and one skill in the art would recognize this fact. Also, it is to be assumed that such a viscosity measurement would be at 20°C (standard temperature and pressure), unless otherwise noted. A force is applied to the surface (toilet bowl) by movement of liquid (toilet cleanser) on the surface (toilet bowl) – by flushing of the toilet bowl with water (Column 3, Lines 7-17). The force is generated by the movement of the liquid (toilet cleanser) caused by relative movement of a member (toilet flushing means) in contact with the liquid but not in contact with the object (toilet bowl)(non-contact state). The member (toilet bowl) has an

“odd-shaped” surface. The force is an externally applied force (user engages toilet flushing means). The liquid is moved on the surface by declination of the object (gravity flowing due to shape of bowl – to drain). The liquid is moved on the surface by supplying another liquid (water) having lower viscosity than the liquid (toilet cleanser). The liquid comprises a water soluble compound consisting of ethylene oxide additives and propylene oxide additives of polyatomic alcohol and nonionic surfactant. (Column 4, Lines 3-37). Note: the use of a liquid to clean a patterned photomask is intended use. Also, the liquid is a homogenous solution; therefore, there is no reason to believe that the solution contains particles at all and would be free of particles of 0.1 μm .

11. In regards to claim 69, Gross et al. does not teach that the liquid has a pH of 6 or higher; however, it has been held that an obvious choice in design is not patentable (In re Kuhle 188 USPQ 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gross et al. such that the pH is 6 or higher (such as the pH of water -- the solvent) to use a neutral cleaning pH and conventional aqueous solution to achieve the expected result.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 33-35, 38-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka (JP2296243) in view of Ishio (JP63050842).

14. Tanaka teaches a cleaning method for cleaning a photomask (having a patterned structure) by making a cleaning agent contact a surface of the photomask and applying a force on the surface by moving the cleaning agent on the surface to remove the particles. Note: the surface being free of particles being 0.15 micron or larger is an expected result and the burden is on the applicant to prove that Tanaka cannot accomplish such. The cleaning agent is in a liquid state and contains particles not greater than 1 micron. In regards to claim 44, the structure of a conventional photomask is known in the art. It should be noted that in regards to claim 41, zeta-potential of the particles becoming homopolar with the particles is inherent.

15. Tanaka does not teach 1 micron or less particle size; however, it states "the ratio of incorporation thereof is lowered to avoid the generation of pattern flaws". It should be noted that the absence of the particles (no incorporation) would minimize the particle flaws being made. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Tanaka to create a cleaning solution method which minimizes damage to the small (submicron) patterns of the photomask. Since the cleaning agent contains propylene glycol – the viscosity is assumed to be in the 500 to 700 mPa·s range.

16. Tanaka does not teach ridding the cleaning agent liquid of 1 micron or less particle sizes by filtration nor a pH of 6-9; however, it has been held that an obvious choice in design is not patentable (*In re Kuhle* 188 USPQ 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Tanaka to create a cleaning solution method which uses "ultrapure" basic (KOH) cleaning reagents

-- as is common in clean rooms and cleaning quartz materials. Also, polyethoxyethylene alkyl ether and alkaline builder are obvious variations of propylene glycol -- see applicant's disclosure -- pg. 17. Also, it is known spin objects in order to remove cleaning fluid -- see Masui et al. (US Patent No. 6945259).

17. Tanaka does not teach moving the cleaning agent using a member in contact with the liquid but not the photomask (such as another liquid); however, Ishio (JP63050842) teaches the use of ethanol to rinse off a thick naphthalene film on a photomask for cleaning. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Tanaka with Ishio to create a cleaning solution method which gently removes the cleaning liquid using a second liquid of lower viscosity (ethanol) to achieve the expected result.

Conclusion

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

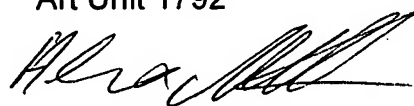
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason P. Riggleman whose telephone number is 571-272-5935. The examiner can normally be reached on M-F, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JPR

Jason P Riggleman
Examiner
Art Unit 1792



ALEXANDER MARKOFF
PRIMARY EXAMINER